

**Tetra Tech, Inc. Progress Report**  
**EPA Contract No. EP-C-17-046**  
**August 24, 2020 through September 27, 2020**

**Task Order (TO) #003**

**Chesapeake Bay TMDL Midpoint Watershed  
Implementation Plan and Modeling Support**

**EPA TO-Level Contracting Officer  
Representative (TOCOR)**

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**Tetra Tech TO Leader:**

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**ACTIVITIES THIS REPORTING PERIOD:**

*Task 1. Kickoff and Management*

- Prepared and submitted invoice and progress report.
- Communicated regularly with the TOCOR.

*Task 2. BMP Panels*

- Wastewater Workgroup Support (TD #5)
  - This TD is complete.

*Task 3. Modeling Input Data*

- Model Report Editing (TD #10)
  - This TD is complete.

*Task 4. WIP Support*

- Communications Support (TD #1)
  - Communicated with the task leader regarding the requested support and overall project timeline. Prepared agendas and submitted summaries and action items for status calls.
  - Continued to update the case studies spreadsheet with additional case studies leads identified by the WEAT team, Communications team, Bay Journal, and Bay News and Chesapeake Current list serves.
  - Participated in a project status call with the task leader on 9/3/20. Submitted the action items/synopsis from the call on 9/4/20.
  - Continued to research other data sources to identify recreation economic data that could be used to develop state-specific graphics.
  - Continued to correspond with the task leader about where the case studies database might be housed and maintained.
  - Developed and submitted the Leveraging Memberships and Donations to Finance Trees (Lancaster, PA) success story on 9/4/2020.
  - Submitted an updated recommendations spreadsheet with color coding and priority assignments on 9/10/2020.
  - Submitted the revised Dupont Tree Plaza success story for Washington, DC on 9/11/2020.
  - Developed and submitted the Edmonston, MD success story on 9/17/2020.
  - Submitted the revised VA Fishing License map on 9/24/2020.

- WV WIP Support (TD #2)
  - Participated in Modeling Team meetings on 8/27, 9/1, 9/8, and 9/22/20.
  - Participated in WQGIT Mtgs. on 8/24 and 9/10/20.
  - Provided technical assistance to DEP re: climate change allocation options on multiple days.
  - Participated in call with WV Trib Team Mtg. on 8/26/20.
  - Provided technical assistance to DEP re: offsetting expanded point source on 8/31 and 9/17/20.
  - Participated in WWTWG mtg. on 9/1/20.
  - Participated in LUWG mtg. on 9/2/20.
  - Participated in WTWG mtg. on 9/3/20.
  - Co-chaired MWG September Mtg. 9/10/20.
  - Participated in USWG mtg. on 9/15/20.
  - Participated in AgWG mtg. on 9/17/20; co-presented w/coordinator with respect to WV Ag census concerns.
  - Participated in 9/17/20 Management Board Mtg. with respect to WQGIT Climate Change recommendations.
  - Initiated evaluation of WV CSO reporting protocols.
  - Provided technical assistance to DEP Permits regarding biosolids reporting at various times, finalized on 9/22/20.
- Statistical Support (TD #6)
  - Participated and presented technical data various technical conference calls.
  - Completed and submitted Patuxent River SEM presentation material.
  - Presented at monthly CBP ITAT meeting.
  - Provided follow up analyses based on CBP ITAT meeting comments.
- DE WIP Support (TD #7)
  - This TD is complete.
- MD Septic Support (TD #4)
  - This TD is complete.
- WV GI Planning (TD #8)
  - No progress to report.
- Conowingo WIP Support (TD #9)
  - This TD is complete.
- Trading and Offsets Support (TD #11)
  - No progress to report.
- SAV Fact Sheets (TD #12)
  - This TD is complete.
- New York Developed Sector BMP Support (TD #13)
  - Completed and submitted Draft statistical survey procedures for deliverable #2.
  - Maintained email dialogue with stakeholders.

#### *Task 5. Decision Support Tools*

- Decision Support Tool Development (Work conducted by subcontractors DEC and J7) (TD #3):
  - Participated in Modeling and CAST project management meetings to address any modeling issues and determine updates/changes, provide project status updates (CAST management team meetings – 8/25/20, 9/22/20; CAST development team meetings – 9/24/20, 9/25/20, Bi-Weekly Implementation & Evaluation Team meeting – 9/9/20, 9/23/20).
  - Reviewed CAST development on a weekly basis and updated website and data products as needed.

- Interfaced between states and localities using sound data to find areas of agreement when there is ambiguity about implementation and built consensus about resolving those ambiguities.
- Provided training and analysis to EPA/CBPO staff and responded to questions.
- Provided training to and answered questions on CAST-2019.
- Discussed approaches for handling BMPs in the models, including scheduling of model changes.
- Developed content for CAST newsletter.
- Prepared and conducted a CAST training webinar.
- Planned for future versions of CAST.
- Conducted analyses to assist CAST users in understanding their scenario data.
- Responded to MDE on stream bed and bank calculations.
- Worked with Emily Trentacoste and her contractors on BMP Confidence Metric.
- Developed plan for incorporating the explicit land cover/use into the CAST interface for planning scenarios.
- Assist BMP optimization grantees with developing an optimization algorithm
- Conducted BMP verification loads analysis.
- Responded to user questions about data in CAST and helped with analyzing results.
- Planned for next steps in BMP optimization process new contract team.
- Completed modeling data for wastewater outfall geocoding.
- Continued improvement of wastewater range checks.
- Continued planning for CAST 2021.
- Continued NEIEN portal development.
- WQGIT- 8/24/20
- CAST and state coordination - 8/27/20
- Ad Hoc Modeling Team Meeting with Optimization Team - 8/27/20
- Non-urban stream restoration - 8/28/20
- Federal Agency Progress Evaluation - 8/31/20
- Watershed Technical Workgroup - 9/3/20
- Modeling Workgroup Conference Call - 9/10/20
- PA-DEP BMP Reporting of Forest Buffers - 9/11/20
- CAST Webinar - 9/22/20
- Modeling Ad Hoc meeting - 9/22/20
- CRC Roundtable - 9/23/20
- WV BMP Crediting - 9/23/20
- CAST and state coordination - 9/24/20
- CAST Spatially Explicit Land Use meeting with Data Team - 9/25/20
- Optimization Project Discussion - 9/25/20
- Development, Deployment, and Maintenance of CBPO Monitoring and Modeling Applications in Cloud-based Environments (TD #14)
  - Finalized initial design and prototype for public report data generation for CoreCast model generation process. Presented design and logic flow to CBPO technology leadership.
  - Near completion of actual implementation of public report data generation for CoreCast, based on design and prototype discussions.
  - Optimizing current data cache mechanism and troubleshooting memory and CPU usage issues with current CBPO technology team.
  - Internal discussions and mentoring of current CBPO technology professionals as they worked on different aspects of the CBPO modeling infrastructure.

## Task 6. Exchange Network-Based BMP Tracking

- No TDs assigned at this time.

**DELIVERABLES TO DATE:**

Product/Deliverable	Date (mm/yy)	Level of QA/QC*
<b>Task 2. BMP Panels</b>		
<b><i>TD #5. Wastewater Workgroup Support</i></b>		
Powerpoint slides for WWTWG presentation of Boat Pump Out report	4/18	1
Final OWTS BMP report for WWTWG approval	5/18	3
Final draft Boat Pump-Out expert panel report	7/18	2
Powerpoint slides for WQGIT presentation of Boat Pump Out report	7/18	1
Powerpoint slides for Aug. WQGIT presentation of Boat Pump Out report	8/18	1
Final Boat Pump-Out expert panel report	8/18	2
<b>Task 3. Modeling Input Data</b>		
<b><i>TD #10. Model Report Editing</i></b>		
Report Template	2/19	2
Task Approach	3/19	3
Front Matter (formatted, edited Word file)	3/19	2
Chapter 1 (formatted, edited Word file)	3/19	2
Chapter 2 (formatted, edited Word file)	3/19	2
Task Approach (annotated with comments from 3/19/16 conf call)	3/19	2
Chapter 3 (formatted, edited Word file)	4/19	2
Chapter 4 (formatted, edited Word file)	6/19	2
Chapter 5 (formatted, edited Word file)	6/19	2
Chapter 6 (formatted, edited Word file)	6/19	2
Chapter 7 (formatted, edited Word file)	7/19	2
Chapter 8 (formatted, edited Word file)	7/19	2
Chapter 9 (formatted, edited Word file)	7/19	2
Appendix A (formatted, edited Word file)	7/19	2
Appendix B (formatted, edited Word file)	7/19	2
Appendix C (formatted, edited Word file)	7/19	2
Appendix D (formatted, edited Word file)	7/19	2
Chapter 1 (revised Word file)	7/19	2
Chapter 2 (revised Word file)	7/19	2
Chapter 3 (revised Word file)	7/19	2
Chapter 4 (revised Word file)	7/19	2
Chapter 5 (revised Word file)	7/19	2
Chapter 6 (revised Word file)	7/19	2
List of Abbreviations and Acronyms (draft)	8/19	2
Appendix E (formatted, edited Word file)	8/19	2
Appendix F (formatted, edited Word file)	8/19	2
Appendix G (formatted, edited Word file)	8/19	2
Front Matter (formatted, edited Word file)	9/19	2

Product/Deliverable	Date (mm/yy)	Level of QA/QC*
Chapter 7 (revised Word file)	9/19	2
Chapter 8 (revised Word file)	9/19	2
Chapter 9 (revised Word file)	9/19	2
Appendix A (revised Word file)	9/19	2
Appendix B (revised Word file)	9/19	2
Appendix C (revised Word file)	9/19	2
Appendix D (revised Word file)	9/19	2
Appendix E (revised Word file)	10/19	2
Appendix F (revised Word file)	10/19	2
Final Word files and PDF file of Chapters 0 through 9 and Appendices A through G	1/20	2
<b>Task 4. WIP Support</b>		
<b><i>TD #1. Communications Support</i></b>		
BMP icon	4/18	NA
Potential case studies and success stories (4 <sup>th</sup> set)	4/18	3
Goals and outcomes graphic	5/18, 7/18, 8/18, 9/18, 10/18, 2/19, 3/19	NA
Edited BMP talking points	5/18	3
West Virginia healthy/unhealthy graphic	5/18, 7/18, 8/18, 9/18, 10/18, 2/19, 3/19	NA
Revised Model Fact Sheet	6/18	3
BMPs PowerPoint presentation and Fact Sheet	6/18	3
Potential case studies and success stories (5 <sup>th</sup> set)	9/18	3
Narrative of the Healthy/Unhealthy Fresh Water Graphic	10/18, 12/18, 3/19	3
Searchable Case Studies Spreadsheet	12/18, 3/19, 8/19, 9/19, 12/19, 2/20, 3/20, 7/20	3
Conowingo Request for Applications Summary	2/19	3

Product/Deliverable	Date (mm/yy)	Level of QA/QC*
List of Benefits	2/19, 3/19, 6/19, 7/19, 8/19, 12/19, 1/20	1
Three ideas for co-benefit fact sheets	3/19	1
5 WEAT Case Study Templates	3/19	1
Goals and Outcomes Narrative	3/19	3
42 one-page summaries for case studies identified by Tetra Tech or the Bay Program	3/19	1
5 WEAT one-page templates for case studies identified by the WEAT team	3/19	1
Fish Habitat Phase III Fact Sheet	4/19, 6/19, 7/19	3
Stream health infographic ideas	5/19	1
Edits to the “Community and Economic Benefits from Healthy Waters” document also called the “Top Ten List”	6/19, 7/19	3
VA Biofuels Case Study	6/19, 8/19	1
Benefits Talking Points	6/19	3
Interactive Version of the Goals and Outcomes Graphic	6/19	1
Action items/synopsis from task order calls	7/19, 8/19	1
Recommendations for case study buildouts	7/19	1
Climate Resiliency fact sheet	7/19	3
Case studies/success story template	7/19, 8/19	1
List of BMPs/conservation practices	7/19, 8/19	1
High resolution photos and permissions to use Glenn Rodes photos	7/19	1
2-page version of the Edits to the “Community and Economic Benefits from Healthy Waters” document also called the “Top Ten List”	8/19, 10/19	3
2-page mock-up of a state-specific case study fact sheet	8/19	1
West Virginia case study	8/19	3
Flash drive of associated case study 1-pagers	8/19	1
Mail merge output of the case studies in Word	9/19	1
Written comments for the new case studies template of River Hill Farm	9/19	3
Decisions for the Fish Economic Infographic	10/19	1
Maryland Fishing Economic Infographic	11/19	1
Map portion of Maryland Fishing Economic Infographic	11/19	1
Map portion of Pennsylvania Fishing Economic Infographic	12/19	1
Draft Virginia Fishing Economic Map (.eps and .jpg files)	1/20, 9/20	1
Draft Sediment Factsheet	2/20	3
Draft Urban Top Ten Fact Sheet	2/20	3
Draft Rural Top Ten Fact Sheet	2/20	3
Editorial suggestions for the Final Top Ten Fact Sheet	2/20	3

Product/Deliverable	Date (mm/yy)	Level of QA/QC*
Map portion of Delaware Fishing Economic Infographic	3/20	1
Dupont Tree Plaza case study	3/20, 7/20, 9/20	3
Research summary of economics data	5/20, 8/20	2
Draft Berkeley Springs, WV case study	5/20	3
Case study buildout recommendations	6/20, 8/20	1
Recreation economic data mock-up	6/20	1
Suggestions for greening efforts in Baltimore case study	6/20	1
Baltimore Green Network case study	7/20	3
City of Lancaster, PA case study	8/20	3
Leveraging Memberships and Donations to Finance Trees (Lancaster, PA)	9/20	3
Suggestions spreadsheet for case studies buildout	9/20	2
Edmonston, MD success story	9/20	3
<b>TD #2. WV WIP Support</b>		
Participated in WQGIT mtgs. 4/9, 4/23	4/18	NA
Participated in WV WIP III planning and development mtgs 4/2, 4/26	4/18	NA
Attended and co-chaired Modeling Workgroup Quarterly mtg. 4/10, 4/11	4/18	NA
Participated in Modeling Team Mtgs. 4/3, 4/17, 4/24	4/18	NA
Participated in Wastewater Treatment Workgroup monthly mtg. 4/3	4/18	NA
Participated in Landuse Workgroup monthly mtg. 4/4	4/18	NA
Participated in Wastewater Treatment Workgroup mtg. 5/1	5/18	NA
Participated in ITAT Mtg. 5/8	5/18	NA
Participated in mtg. of Steering Committee for STAC Climate Change Modeling Workshop 5/9	5/18	NA
Participated in Modeling Team Mtgs. 5/8, 5/15, 5/22	5/18	NA
Attended/presented at WV AG WIP3 Stakeholders Mtg. 5/14	5/18	NA
Participated in WQGIT mtg. 5/14	5/18	NA
Participated on Coregulator's Call 5/17	5/18	NA
Attended CBP Science for WV WIP3 Mtg. 5/21	5/18	NA
Participated in WV Trib Team Mtg. 5/31	6/18	NA
Participated in 2YR Milestone evaluation call between WV and EPA 5/31	6/18	NA
Chaired MWG Mtg. 6/5	6/18	NA
Participated in Wastewater Treatment Workgroup monthly mtg. 6/5	6/18	NA
Participated in WQGIT mtgs. 6/11, 6/18	6/18	NA
Participated in ITAT Mtg. 6/12	6/18	NA
Met w/WVDEP leadership to prepare for July 9 PSC mtg. 6/26	6/18	NA
Participated in Modeling Team Mtgs. 5/31 and 6/26	6/18	NA
Attended PSC Mtg. 7/9	7/18	NA
Chaired MWG Quarterly Mtg. 7/10	7/18	NA
Participated in WV Trib Team WIP III outreach planning meeting 7/11	7/18	NA
Participated in STAC workshop Steering Committee mtgs. 7/12, 7/26	7/18	NA

Product/Deliverable	Date (mm/yy)	Level of QA/QC*
Participated in Modeling Team Mtg. 7/17	7/18	NA
Participated in WQGIT meeting 7/23	7/18	NA
Attended/supported WIP 3 public meeting in Martinsburg, WV 7/30	8/18	NA
Attended/supported WIP 3 public meeting in Moorefield, WV 7/31	8/18	NA
Participated in Modeling Team meetings on 7/31 and 8/14	8/18	NA
Participated in WV Trib Team meeting on 8/2	8/18	NA
Participated in WQGIT meeting on 8/13	8/18	NA
Participated in ITAT meeting on 8/14	8/18	NA
Participated in WV WIP III Stream Restoration subgroup meeting on 8/22	8/18	NA
Finalized "Strawman WIP3" input deck and sent to key trib team members w/ documentation 8/22	8/18	NA
Participated in Modeling Team meetings on 8/28, 8/29, 9/5 and 9/18/18	9/18	NA
Participated in WV Trib Team WIP 3 Planning meeting on 8/28/18	9/18	NA
Participated in kickoff meeting for Trib Team WIP 3 Cacapon Watershed subgroup on 8/29/18	9/18	NA
Co-chaired Modeling Workgroup meeting 9/11/18	9/18	NA
Participated in calls of the STAC Climate Change Modeling 2.0 Workshop steering committee 8/30, 9/5, 9/13/18 and attended workshop 9/24,25/18	9/18	NA
Provided first draft of WIP 3 text relative to streambank restoration for WV Trib Team WIP III Stream Restoration subgroup meeting on 9/17/18	9/18	NA
Participated in WV Trib Team meeting on 10/2	10/18	NA
Participated in ITAT meeting on 10/9	10/18	NA
Participated in WQGIT meetings on 10/9 and 10/22	10/18	NA
Participated in Modeling Team meeting on 10/10	10/18	NA
Participated in WIP III Cacapon Watershed subgroup meeting on 10/15	10/18	NA
Chaired MWG Quarterly Mtg. 10/16,17	10/18	NA
Participated in WIP III Stream Restoration subgroup meeting on 10/23	10/18	NA
Participated in WQGIT meetings on 11/13	11/18	NA
Participated in WV Trib Team meeting on 11/7	11/18	NA
Participated in WIP III Stream Restoration subgroup meeting on 11/13	11/18	NA
Participated in Modeling Team meetings on 10/30 and 11/6	11/18	NA
Participated in Modeling Team meetings on 11/27, 12/4 and 12/18	12/18	NA
Participated in WQGIT meetings on 12/10	12/18	NA
Participated in ITAT meeting on 12/11	12/18	NA
Participated in GAAT call 11/28	12/18	NA
Participated in LUWG Meeting 12/12	12/18	NA
Participated in WV Trib Team meeting 12/12	12/18	NA
Participated in WIP3 Planning meeting 12/19	12/18	NA
Participated in Conowingo interview 12/21	12/18	NA
Participated in Modeling Team meetings on 1/29 and 2/5	2/19	NA
Participated in WIP3 Planning meeting 2/5	2/19	NA

Product/Deliverable	Date (mm/yy)	Level of QA/QC*
Participated in WQGIT meeting on 2/11	2/19	NA
Participated in ITAT meeting on 2/12	2/19	NA
Participated in WV Trib Team meeting 2/12	2/19	NA
Chaired MWG Quarterly Mtg. 2/19,20	2/19	NA
Made WIP3 presentation to WVDEP 2/24	2/19	NA
Participated in WIP3 Planning meeting 3/7	3/19	NA
Participated in ITAT meeting on 3/12	3/19	NA
Participated in WQGIT meeting on 3/11 and 3/25	3/19	NA
Participated in Modeling Team meetings on 2/26 and 3/19	3/19	NA
Attended STAC AEIOU on 3/20 and 3/21	3/19	NA
Attended Climate Resiliency WG Mtg. on 2/25	3/19	NA
Attended WTWG Mtg. on 3/7	3/19	NA
Submitted Conservation history and goals to CBPO 2/26	3/19	NA
Submitted Draft WIP3 Wastewater Input deck to CBPO 2/27	3/19	NA
Submitted Draft WIP3 Cast scenario to CBPO 3/26	3/19	NA
Chaired MWG Quarterly Mtg. 4/2,3	4/19	NA
Participated in Modeling Team meetings on 4/9 and 4/16	4/19	NA
Participated in WQGIT meetings on 4/8 and 4/22	4/19	NA
Participated in ITAT meeting on 4/9	4/19	NA
Participated in WIP3 Planning meeting 4/4	4/19	NA
Participated in WV Trib Team meeting 4/10	4/19	NA
Submitted Final Draft WIP3 Cast scenario to CBPO 4/10	4/19	NA
Participated in Modeling Team meetings on 5/7, 5/14, 5/21	5/19	NA
Participated in WQGIT meeting on 5/13	5/19	NA
Participated and presented at Climate Resiliency WG Mtg. on 5/20	5/19	NA
Participated in Conowingo Steering Committee meeting on 5/15	5/19	NA
Met on 5/6 with DEP leadership to prepare for PSC meeting	5/19	NA
Participated in Modeling Team meeting on 5/29	6/19	NA
Chaired MWG Mtg. on 5/30	6/19	NA
Participated in WQGIT meeting on 6/10	6/19	NA
Participated in ITAT meeting on 6/11	6/19	NA
Participated in WV Ag BMP Implementation Pilot call on 6/24	6/19	NA
Participated in WIP3 Planning meeting on 6/25	6/19	NA
Participated in Modeling Team meeting on 7/2	7/19	NA
Participated in WQGIT meeting on 7/8	7/19	NA
Co-chaired MWG Quarterly Mtg. 7/16,7/17	7/19	NA
Participated in poultry litter mtg. in Moorefield, WV on 7/11	7/19	NA
Participated in buffer workgroup kick-off call on 7/15	7/19	NA
Participated on EPA WIP3 evaluation call on 7/16	7/19	NA
Participated in WIP3 Planning meeting on 7/18	7/19	NA
Participated in Modeling Team meetings on 8/6, 8/13, 8/20	8/19	NA

Product/Deliverable	Date (mm/yy)	Level of QA/QC*
Participated in WQGIT meeting on 8/19	8/19	NA
Participated in WIP3 Planning meeting on 8/8	8/19	NA
Participated in Modeling Team meetings on 9/3, 9/11, 9/24	9/19	NA
Participated in Wastewater Treatment Workgroup meeting on 9/3/19	9/19	NA
Participated in Landuse Workgroup meeting on 9/4/19	9/19	NA
Participated in WQGIT meeting on 9/9/19	9/19	NA
Co-chaired Modeling Workgroup meeting on 9/12/19	9/19	NA
Participated in Urban Stormwater Workgroup meeting on 9/17/19	9/19	NA
Participated in Modeling Team meeting on 10/24	10/19	NA
Participated in WQGIT meeting on 10/15/19	10/19	NA
Co-chaired Modeling Workgroup meeting on 10/8/19-10/9/19	10/19	NA
Participated in Urban Stormwater Workgroup meeting on 10/15/19	10/19	NA
Participated in LUWG Mtg on 11/6/19	11/19	NA
Participated in WTWG Mtg. on 11/7/19	11/19	NA
Participated in Modeling Team meetings on 10/29/19 and 11/19/19	11/19	NA
Participated in WQGIT meeting on 11/12/19	11/19	NA
Participated in WV Trib Team Mtg. on 11/13/19	11/19	NA
Participated in Modeling Team meetings on 12/3/19, 12/19/19, 12/17/19	12/19	NA
Participated in joint LUWG/FWG Mtg on 12/4/19	12/19	NA
Co-chaired Modeling Workgroup meeting on 12/5/19	12/19	NA
Participated in WQGIT meeting on 12/9/19	12/19	NA
Participated in joint TCW/WWTWG Mtg. on 12/11/19	12/19	NA
Co-chaired MWG Quarterly Mtg. on 1/7,1/8/20	1/20	NA
Participated in WQGIT meeting on 1/13/20	1/20	NA
Participated in WV Trib Team Mtg. on 1/10/20	1/20	NA
Participated in Modeling Team meetings on 1/14/20 and 1/21/20	1/20	NA
Participated in AGWG meeting on 1/16/20	1/20	NA
Prepared WV senior leadership on 1/15/20 for 1/24/20 PSC meeting	1/20	NA
Participated in Modeling Team meeting on 2/4/20	2/20	NA
Co-chaired MWG Quarterly Mtg. on 2/4/20	2/20	NA
Participated in WQGIT face-to-face Climate Mtg. on 2/10/20 and 2/11/20	2/20	NA
Participated on EPA/WV 2yr milestone call on 2/12/20	2/20	NA
Participated in WV Trib Team Mtg. on 2/19/20	2/20	NA
Participated in Modeling Team meetings on 2/25, 3/3, 3/17, 3/24, 3/31	3/20	NA
Participated in AGWG meeting on 3/3/20	3/20	NA
Participated in LUWG meeting on 3/4/20	3/20	NA
Participated in WTWG meeting on 3/5/20	3/20	NA
Participated in WVDEP/CBP CAST 2019 call on 3/20/20	3/20	NA
Participated in WQGIT meeting on 3/23/20	3/20	NA
Participated in AGWG meeting on 4/16/20	4/20	NA
Co-chaired MWG Quarterly Mtg. on 4/7/20 and 4/8/20	4/20	NA

Product/Deliverable	Date (mm/yy)	Level of QA/QC*
Participated in Modeling Team meetings on 4/14/20 and 4/21/20	4/20	NA
Participated in WQGIT meeting on 4/27/20	5/20	NA
Participated in Modeling Team meetings on 4/28, 5/5 and 5/19/20	5/20	NA
Participated/presented at WV Tributary Team Mtg. on 4/30/20	5/20	NA
Participated in WTWG meeting on 5/7/20	5/20	NA
PSC preparation with DEP senior management on 5/20/20	5/20	NA
Participated in EPA/WV 2 yr. MS call on 5/18/20	5/20	NA
Participated in Modeling Team meetings on 6/2/20, 6/16/20, 6/23/20	6/20	NA
Participated in WQGIT meetings on 5/26/20 and 6/22/20	6/20	NA
Participated in joint MWG, CRWG, USWG meeting on 6/16/20	6/20	NA
Participated in WVDEP/CBPO CAST 2019 meeting on 6/11/20	6/20	NA
Participated in WV Tributary Team Mtg. on 6/24/20	6/20	NA
PSC preparation with DEP senior management on 6/24/20	6/20	NA
Participated in Modeling Team meetings on 6/30/20, 7/14/20, 7/21/20	7/20	NA
Participated in Management Board Mtg. on 7/9/20	7/20	NA
Participated in WQGIT meeting on 7/13/20	7/20	NA
Co-chaired MWG Quarterly Mtg. on 7/7/20 and 7/8/20	7/20	NA
Participated in AGWG meeting on 7/16/20	7/20	NA
Prepared WV senior leadership for 7/9/20 MB and 7/16 PSC calls	7/20	NA
Participated in Modeling Team meetings on 7/28, 8/4, 8/11, and 8/18/20	8/20	NA
Participated in WQGIT meeting on 7/27/20	8/20	NA
Prep DEP management re WQGIT Climate change allocation 8/19/20	8/20	NA
Represented WV on WWTWG Call with new leadership 8/20/20	8/20	NA
Participated in Modeling Team meetings on 8/27, 9/1, 9/8, and 9/22/20	9/20	NA
Participated in WQGIT meetings on 8/24/20 and 9/10/20	9/20	NA
Participated in WV Tributary Team mtg. on 8/26/20	9/20	NA
Co-chaired MWG September mtg. on 9/10/20	9/20	NA
Participated in WWTWG mtg. on 9/1/20	9/20	NA
Participated in LUWG mtg. on 9/2/20	9/20	NA
Participated in WTWG mtg. on 9/3/20	9/20	NA
Participated in USWG mtg. on 9/15/20	9/20	NA
Tech. assist. to WV-multiple issues including PS offset, biosolids	9/20	NA
Participated in AGWG meeting on 9/17/20	9/20	NA
Participated in Management Board Mtg. on 9/17/20	9/20	NA
<b>TD #4: MD Septic Support</b>		
Technical Memo: Data Collection and Spatial Analysis Update	11/18	2
Notes from December 4, 2018 progress call	12/18	2
Notes from December 28, 2018 progress call	12/18	2
Notes from January 31, 2019 and February 14, 2019 progress calls	2/19	2
GIS package deliverable	3/19	3
Prioritization tool deliverable	3/19	3

Product/Deliverable	Date (mm/yy)	Level of QA/QC*
Draft and final report	3/19	2
<b>TD #6: Statistical Support</b>		
Participated in technical meetings (4/30, 5/22)	5/18	NA
Rmd script for performing GAM analyses for multiple flow averaging windows	5/18	1
Updated baytrends, v1.0.3 (5/3) and v1.0.4 (5/14)	5/18	1
R and Rmd script for sending output to multiple files (5/11)	5/18	1
Participated in technical meetings (6/22, 6/27)	6/18	NA
R script demonstrating baytrends:gamPlotDisp (6/26)	6/18	1
R script and functions for post-processing figures including time series and slope plots (6/26)	6/18	1
R script demonstrating how to average data from multiple layers (6/26)	6/18	1
baytrends, v1.0.7 posted to CRAN	7/18	4
Draft deSeasonalize function	7/18	1
Draft added variable plot procedure	7/18	1
Revised baytrends function, computeResiduals (formerly deSeasonalize)	8/18	1
Example Potomac River analyses	8/18	1
Revised plotting functions func_make_2column_figures and func_make_slope_plots	9/18	1
Revised algorithm to compute seasonally average time series	1/19	1
Uploaded baytrends v1.1.0 to CRAN	3/19	1
Variable documentation spreadsheet for baytrends	3/19	1
Pre-release baytrends v1.1.0.9002—improved error trapping	6/19	1
Pre-release baytrends v1.1.0.9003—seasonal analyses	6/19	1
Pre-release baytrends v1.1.0.9004—punch list items related to error trapping and seasonal analyses	6/19	1
Shiny app tool to create maps	9/19	1
Uploaded v1.2.1 baytrends to CRAN and submitted a summary memo	3/20	1
v1.2.1.8011 baytrends upgrade for survival::Surv	7/20	2
v1.1.0.9003 baytrendsmap	7/20	2
Patuxent River SEM presentation	9/20	2
<b>TD #7. DE WIP Support</b>		
Participated in WIP steering committee planning mtg.	5/18	NA
Participated in Ag and Developed Sector WIP mtgs.	6/18	NA
Participated in Ag Sector WIP meeting.	12/18	NA
Draft Ag Sector WIP Fact Sheet	12/18	3
Draft Phase III WIP for public and EPA review	4/19	3
Response to comments appendix for revised Phase III WIP	8/19	2
<b>TD #8. WV GI Planning</b>		
Draft presentation, factsheets and expression of interest form	10/18	1
Revised presentation and factsheets	11/18	1
Maps for Romney workshop	7/19	2

Product/Deliverable	Date (mm/yy)	Level of QA/QC*
Facilitated workshop in Romney	8/19	1
Martinsburg site assessment	11/19	2
Romney Draft Workshop Memo	12/19	2
Maps for Martinsburg workshop	1/20	2
Facilitated and presented at public meeting and workshop in Martinsburg	1/20	1
Romney Final Workshop Memo	1/20	3
Romney Preliminary Cost Estimate	2/20	2
Romney G3 grant application assistance	3/20	2
Martinsburg draft Workshop and Concept Design report	4/20	3
Martinsburg updated draft Workshop and Concept Design report	4/20	3
Final Martinsburg Workshop and Concept Design Report	8/20	3
<b>TD #9. Conowingo WIP Support</b>		
Conowingo WIP Steering Committee Presentation	2/19	2
Conowingo WIP Steering Committee Presentation and matrix	3/19	2
Conowingo WIP Steering Committee Presentation	5/19	2
Conowingo WIP Steering Committee Presentation	6/19	2
Draft Documentation for WIP	6/19	2
Final draft Documentation for WIP	7/19	2
<b>TD #11. Trading and Offsets Support</b>		
Project schedule	6/19	1
Assessment report outline	6/19	1
Draft executive summary for Virginia's trading and offset program	9/19	2
<b>TD #12. SAV Fact Sheets</b>		
Submitted SAV Fact Sheets	11/19	3
<b>TD #13 NY BMP Verification</b>		
Deliverable #1 – Technical memorandum documenting developed sector review	7/20	2
Deliverable #2 – Technical memorandum with draft statistical survey procedures	9/20	2
<b>Task 5. Decision Support Tools</b>		
<b>TD #3. Decision Support Tool Development (conducted by subcontractors DEC and J7)</b>		
DE Developed Sector CAST training materials and Summaries of Most Cost Effective Ag and Developed BMPs in DE	9/18	NA
NY Phase III WIP Summary Presentation	9/18	NA

\*1 = Minimal review is done by the author, including electronic spell/grammar-checking and proof-reading. 2 = Internal review of deliverable not intended to be widely distributed is performed by an impartial person (i.e., technical staff member or editor). 3 = Review of deliverable is performed by a qualified senior-level person and a technical editor, as appropriate. 4 = Final release of major deliverable that will be widely distributed. This review consists of QA/QC review level 3 plus review/final release by both the Tt Technical Monitor and Tt Project Manager. C = Final release of contract documents (e.g., work plan, progress report, invoices) by Tt Program Manager, Project Manager, and Contracts Management staff. P = External peer-review is done if requested by the EPA Project Manager.

**DIFFICULTIES ENCOUNTERED AND REMEDIAL ACTION TAKEN DURING REPORTING PERIOD:**

- Nothing to report.

**ACTIVITIES NEXT REPORTING PERIOD:***Task 1. Kickoff and Management*

- Prepare and submit invoice and progress report.
- Communicate regularly with the TOCOR.

*Task 2. BMP Panels*

- Wastewater Workgroup Support (TD #5)
  - This task is complete unless EPA requests additional support.

*Task 3. Modeling Input Data*

- Model Report Editing (TD #10)
  - This task is complete unless EPA requests additional support.

*Task 4. WIP Support*

- Communications Support (TD #1)
  - Participate in project status calls with the task leader. Submit agendas prior to the calls and action items after the calls.
  - Continue to update the searchable case studies table with leads identified by the WEAT team, Communications team, Bay Journal, and Bay News and Chesapeake Current list serves.
  - Continue to research data sources to develop economic infographics.
  - Submit the draft Prince George's County trees case study.
  - Continue to coordinate with the task leader regarding the case studies database and search engine.
  - Begin development of additional case study buildouts.
  - Submit the Climate Resiliency Fact Sheet, if requested.
  - Update the Fish Habitat Fact Sheet, if requested.
  - Prepare and update communication materials, as requested.
- WV WIP Support (TD #2)
  - Participate in Modeling Team calls.
  - Participate in WQGIT workgroup call as necessary.
  - Co-chair MWG October Quarterly Meeting 10/6,7/20.
  - Participate in WQGIT Mtgs. on 9/28/20 and 10/26/20
  - Participate in WV Trib Team call 10/28/20.
  - Provide technical assistance to WV, as needed.
- Statistical Support (TD #6)
  - Continue to participate in technical conference calls.
  - Continue to provide follow up analyses based on CBP ITAT meeting comments.
  - Present baytrendsmap tool and Patuxent River analyses at modeling workgroup quarterly review meeting.
- DE WIP Support (TD #7)
  - This task is complete unless EPA requests additional support.
- MD Septic Support (TD #4)
  - This task is complete. No additional work is anticipated.

- WV GI Planning (TD #8)
  - Hold additional coordination calls, as needed, during full engineering design work.
- Conowingo WIP Support (TD #9)
  - Additional work not anticipated.
- Trading and Offsets Support (TD #11)
  - Awaiting EPA instruction to proceed.
  - Continue with executive summaries for trading and offset programs in each state.
  - Revise draft executive summary for Virginia's trading and offset program based on EPA's comments with a focus on changes after 2016.
  - Discuss revised version of executive summary for Virginia with EPA and proceed with other jurisdictions as directed by EPA.
- SAV Fact Sheets (TD #12)
  - This task is complete. No additional work is anticipated.
- New York Developed Sector BMP Support (TD #13)
  - Revise draft statistical survey procedures based on stakeholder comment.

#### *Task 5. Decision Support Tools*

- Decision Support Tool Development (Work conducted by subcontractors DEC and J7) (TD #3):
  - Participate in scheduled meetings.
  - Respond to CAST questions and requests for assistance.
  - Incorporate additional functionality into CAST.
  - Support the incorporation of co-benefits in CAST.
  - Identify improvements in data for CAST-21.
  - Lead incorporation of explicit land cover/land use in CAST interface for planning
  - Support users in analyzing results and using CAST.
  - Respond to user questions about changes in CAST2019.
  - Fix point source app QAQC issues.
  - Continue NEIEN portal development.
- Development, Deployment, and Maintenance of CBPO Monitoring and Modeling Applications in Cloud-based Environments (TD #14)
  - Finish end to end implementation of public report data generation for CoreCast.
  - Update internal Confluence documentation with public report data strategy and implementation details.
  - Provide CBPO technology team with the ability to start end to end QA on public report generation process and support QA efforts as scheduled.
  - Assist with next viable task, which could be comparison of scenarios/chart and graphing components.

#### *Task 6. Exchange Network-Based BMP Tracking*

- No work anticipated.